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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,082	07/21/2003	Tetsuro Inui	14321.56	5995

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EXAMINER	
WOLDEKIDAN, HIBRET ASNAKE	

ART UNIT	PAPER NUMBER
4181	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/624,082	INUI ET AL.	
	Examiner	Art Unit	
	HIBRET A. WOLDEKIDAN	4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _21 July 2003_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _21 July 2007_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _See Continuation Sheet_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12/15/06, 07/24/06,10/27/05,10/11/05,07/13/05,12/15/03.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 9-15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (6,925,262) in view of Sasaoka et al. (6,574,404).

Considering claim 1 Ooi discloses a method of monitoring a dispersion on an optical system in a wavelength division multiplexing optical system **(See Col. 2 lines 40-55, Col. 6 lines 21-40, Col. 23 lines 27-42 i.e. a method of monitoring a dispersion on an optical system using a dispersion monitor)**, said method comprising the steps of: extracting two or more of wavelength channels 1 to n from the transmission optical fiber**(See Col. 23 lines 27-42 i.e. a tunable optical filter for extracting signals)**; and monitoring dispersions of the extracted wavelength channels**(See Col. 2 lines 40-55, Col. 23 lines 27-42 i.e. monitoring dispersions of the extracted or filtered signals)**.

Ooi does not specifically disclose the method of monitoring dispersion is on a transmission optical fiber.

Sasaoka teaches the method of monitoring dispersion is on a transmission optical fiber **(See Col. 3 lines 50-65, Col. 8 lines 12-45 i.e. monitoring or measuring dispersion on an optical fiber transmission system)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have the method of monitoring a dispersion is on a transmission optical fiber, as taught by Sasaoka, thus allowing a means of minimizing the dispersion at the receiving end and allowing effective transmission of signals, as discussed by Sasaoka **(Col. 1 lines 65-67 and 1-7)**.

Considering claim 12 Ooi discloses a dispersion monitoring apparatus for monitoring a dispersion on an optical system in a wavelength division multiplexing optical transmission system**(See Ooi Col. 2 lines 40-55, Col. 6 lines 21-40, Col. 23 lines 27-42 i.e. a method of monitoring a dispersion on a transmission system using a dispersion monitor)**, said dispersion monitoring apparatus comprising: extracting means for extracting two or more of wavelength channels from the transmission optical fiber**(See Col. 23 lines 27-42 i.e. a tunable optical filter for extracting signals)**; and monitoring means for monitoring dispersions of the extracted wavelength channels**(See Col. 2 lines 40-55, Col. 23 lines 27-42 i.e. monitoring dispersions of the extracted or filtered signals)**.

Ooi does not specifically disclose the method of monitoring a dispersion is on a transmission optical fiber. Sasaoka teaches the method of monitoring dispersion is on a transmission optical fiber **(See Col. 3 lines 50-65, Col. 8 lines 12-45 i.e. monitoring or measuring dispersion on an optical fiber transmission system)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi, and have the method of monitoring a dispersion is on a transmission optical fiber, as taught by Sasaoka, thus allowing a

means of minimizing the dispersion at the receiving end and allowing effective transmission of signals, as discussed by Sasaoka **(Col. 1 lines 65-67 and 1-7)**.

Considering Claim 13 Ooi discloses a dispersion slope temperature dependency compensating apparatus for compensating a temperature dependency of a dispersion slope in a wavelength division multiplexing optical transmission system **(See Ooi Col. 5 lines 32-53 i.e. a temperature dependency dispersion compensating apparatus)**, Sasaoka further teaches said dispersion slope temperature dependency compensating apparatus comprising: monitoring means for monitoring dispersions of two or more of wavelength channels on a transmission optical fiber**(See Sasaoka Col. 3 lines 50-67 and Col. 4 lines 1-15, Col. 2 lines 41-54 i.e. chromatic dispersion monitoring or measuring unit)**; and compensating means for compensating a wavelength dependency of the temperature dependency of the dispersion in an arbitrary wavelength channel by using the monitored dispersions**(See Sasaoka Col. 3 lines 50-67 and Col. 4 lines 1-15, Col. 2 lines 41-54 i.e. chromatic dispersion compensator)**.

Considering claim 2 Ooi discloses the method according to claim 1, wherein the step of monitoring the dispersions comprises the steps of: measuring a first dispersion value in the extracted wavelength channels 1 to n (wavelength: λ_{mon1} to λ_{monn}) at a certain temperature T_1(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; measuring a second dispersion value in the wavelength channels 1 to n at a certain other temperature T T_2(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**;

providing dispersion variation amounts ΔD_{mon1} to ΔD_{monn} in the extracted wavelength channels 1 to n from a difference between the measured first dispersion value and the measured second dispersion value **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength and determine the dispersion value)**; and providing a dispersion variation amount at an arbitrary wavelength (λ) based on the provided dispersion variation amounts ΔD_{mon1} to ΔD_{monn}**(See Ooi Col. 5 lines 45-53, Col. 6 lines 21-28 i.e. providing a dispersion variation of an arbitrary wavelength or all channel).**

Considering claim 3 Ooi discloses the method according to claim 2, wherein the n is 2 and the step of providing the dispersion variation amount calculates a dispersion variation amount ΔD(λ) in an arbitrary wavelength (k) by the following equation.

$$\Delta D(\lambda) = ((\Delta D_{mon2} - \Delta D_{mon1})/(\lambda_{mon2} - \lambda_{mon1})).\ (\lambda - \lambda_{mon1}) + \Delta D_{mon1}$$

(See Col. 6 lines 21-29, Fig. 5, i.e. a method of determining the dispersion variation amount at any arbitrary point after determining the dispersion at least two wavelength. The above equation is equivalent to y(x)=m(x-x1) +y1, where m is the slope of a line)

Considering claim 4 Ooi discloses the method according to claim 1, wherein the step of monitoring the dispersions comprises the steps of: measuring a first dispersion value in a desired wavelength channel at a certain temperature T_1(°C) **(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength)**; measuring a second dispersion value in the desired wavelength channel at a certain other temperature T_2(°C) **(See Ooi Col. 5 lines 32-49,**

Fig. 5 i.e. measuring dispersion according to change in temperature in a range of wavelength); and providing a dispersion variation amount in the desired wavelength channel from a difference between the measured first dispersion and the measured second dispersion value**(See Ooi Col. 5 lines 32-49, Fig. 5 i.e. providing a dispersion change amount in the wavelength channels)**.

Considering claim 5 Ooi discloses a method of compensating a temperature dependency of a dispersion slope in a wavelength division multiplexing optical transmission system**(See Ooi Col. 6 lines 31-47, Col. 5 lines 32-49, Fig. 6 i.e. variable dispersion compensator for compensating dispersion)**, said method comprising the steps of: providing the dispersion variation amount ΔD(λ) by the method according to any one of claims 2 to 4**(See Ooi Col. 5 lines 45-53, Col. 6 lines 21-28 i.e. providing a dispersion variation of an arbitrary wavelength or all channel)**; and compensating the temperature dependency of the dispersion slope by using the provided dispersion variation amount ΔDλ**(See Ooi Col. 6 lines 31-47, Col. 5 lines 32-49, Fig. 6 i.e. variable dispersion compensator for compensating dispersion)**.
Considering 9 and 17 Ooi teaches the method according to claim 6, wherein the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a filter **(See Ooi Col. 6 lines 33-47, Fig. 6 i.e a dispersion compensator using a tunable filter)**.

Considering Claims 6 and 14 Ooi and Sasaoka disclose the step of compensating the temperature dependency of the dispersion slope comprises the steps of **(See Sasaoka Col. 2 lines 41-54 i.e. a temperature dependency dispersion**

compensating method) : dividing a signal light on the transmission optical fiber to one or more wavelength channel groups constituted by at least one wavelength channel**(See Sasaoka Col. 8 lines 12-35 i.e. wavelength demultiplexing for dividing or demultiplexing a signal light on the transmission optical fiber to one or chromatic dispersion compensator)**; and compensating the dispersion in accordance with each of the divided one or more wavelength channel groups **(See Sasaoka Col. 8 lines 18-49 i.e. chromatic dispersion compensator)**.

Considering Claims 7 and 15 Ooi and Sasaoka disclose the step of compensating the temperature dependency of the dispersion slope summarizingly compensates a wavelength dependency of the temperature dependency of the dispersion in all of bandwidths in a wavelength division multiplexing optical transmission system **(See Sasaoka Col. 8 lines 12-45 i.e. each of the demultiplexed signals being compensated using temperature dependency compensator)**

Considering claim 11 Ooi and Sasaoka disclose the step of compensating the temperature dependency of the dispersion slope comprises the step of: providing a temperature change in a dispersion compensating optical fiber installed at an optical node **(See Sasaoka Col. 7 lines 1-36 i.e. providing a temperature change to the dispersion compensator)**.

Considering Claims 19 Ooi and Sasaoka disclose the dispersion slope temperature dependency compensating apparatus according to claim 15, wherein said compensating means comprising: a dispersion compensating optical fiber installed in an optical node**(See Sasaoka Col. 7 lines 1-36 i.e. installing a dispersion**

compensating optical fiber for compensating the dispersion of the transmission); and means for providing a temperature change to the dispersion compensating optical fiber**(See Sasaoka Col. 7 lines 1-36 i.e. providing a temperature change to the dispersion compensator)**.

3. Claims 8,16,10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (6,925,262) in view of Sasaoka et al. (6,574,404) further in view of Lin (6,396,982)

Considering Claims 8 and 16 Ooi and Sasaoka do not specifically disclose the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating.

Lin teaches the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating **(See Lin Col. 3 lines 64-67 and lines 1-7 i.e. compensating dispersion using one or more tunable dispersion equalizer with a fiber Bragg gratings)**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Ooi and Sasaoka, and have the step of compensating the dispersion is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating, as taught by Lin, thus allowing a means of obtaining easy to use and compact device, as discussed by Lin **(Col. 3 lines 5-22)**.

Considering Claims 10 and 18 Lin teaches the step of compensating the temperature dependency of the dispersion slope is carried out by using one or more tunable dispersion equalizers with a fiber Bragg grating**(See Lin Col. 3 lines 64-67 and**

lines 1-7 i.e. compensating dispersion using one or more tunable dispersion equalizer with a fiber Bragg gratings).

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIBRET A. WOLDEKIDAN whose telephone number is (571)270-5145. The examiner can normally be reached on Monday to Thursday from 8:00 a.m. - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on 5712727876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. A. W./
Examiner, Art Unit 4181

/Nick Corsaro/

Supervisory Patent Examiner, Art Unit 4181